COLORJET

India's largest manufacturer of digital inkjet printers

VERVE mini

USER MANUAL

EFFICIENT INDIAN ENGINEERING

Foreword

This user manual is briefly describing the operational aspects of the **Verve Mini** machine. In this document, the step-wise instructions for handling various aspects of the machine with visual screens are provided for easy and better understanding. It also describes the error messages encountered while working with the machine with appropriate remedial actions required to be taken by the user.

This manual serves as the reference tool which guides their customers how to use or operate the **Verve Mini** machine without anyone else assistance. The information provided in this document ensures its uniqueness and language quality. For safe and proper use of the product, please read this manual carefully and follow all the instructions.

Disclaimer

The information and instructions provided in this user manual have been checked for accuracy, uniqueness, and reliability. ColorJet group reserves all the rights to modify and revise this manual as per the company requirements without any prior notice.

The reference table is shown in the below table:

Doc Type	Doc Code	Version	Machine Name	Date of Issue
User Manual		1	**Verve Mini**	June 2019

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1. About Document

Purpose

The purpose of this document is to guide and educate the targeted audience about the Printer and its Print Control Center software so that they can easily and effectively handle as well as use it as per their requirements. Additionally, this document also provides step-wise instructions for handling various aspects of the printer and its related software with the help of graphical screens for easy and better understanding. Moreover, the document also describes commonly encountered problems while working with the printer and Print Control Center software with appropriate remedial actions.

Intended Audience

This document is meant for all the users who want to use the Printer for their printing business. Sometimes, the targeted audience has little knowledge about the printer but in most of the cases, targeted audience is much familiar with the terminologies of printer and printing business. Thus, this document is designed to facilitate both types of users.

2. Machine Overview

The **Machine View** is shown in the image below:

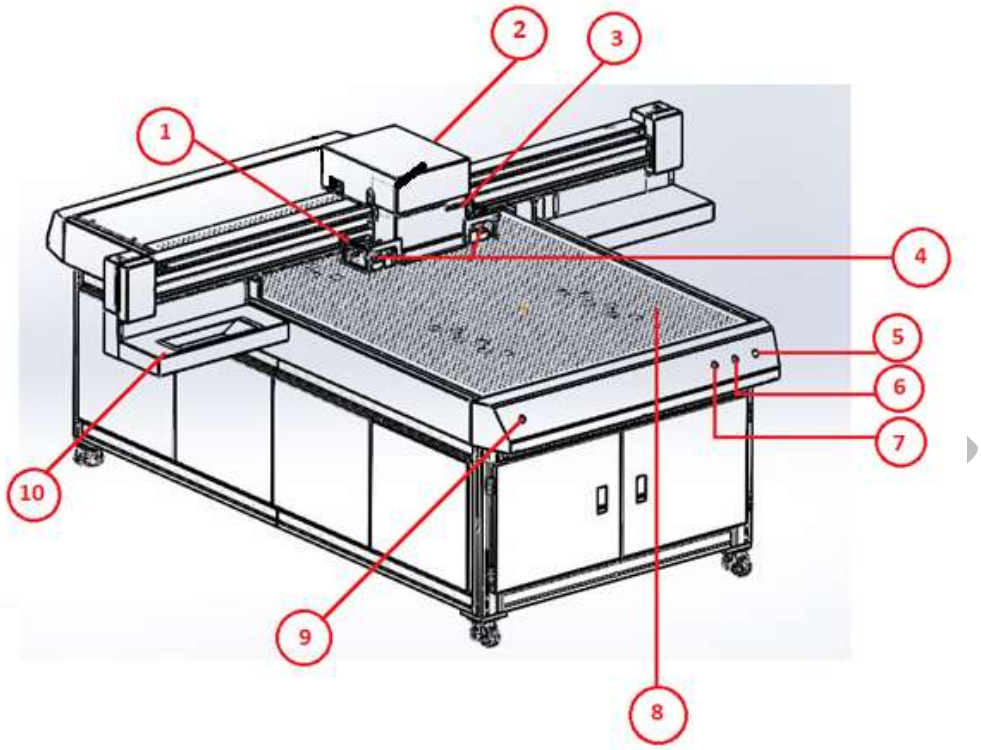


Fig 1: Displaying the Machine View

Table 1:Different Parts of the Machine

1. Carriage Safety Switch	2. Carriage Unit
3. Ink Valves	4. UV Lamps
5. Power Indicator	6. Bed Vacuum Button
7. Purging Button	8. Printing Bed
9. Emergency Button	10. Waste Tray

The **Machine View (Right Side)** is shown in the image below:

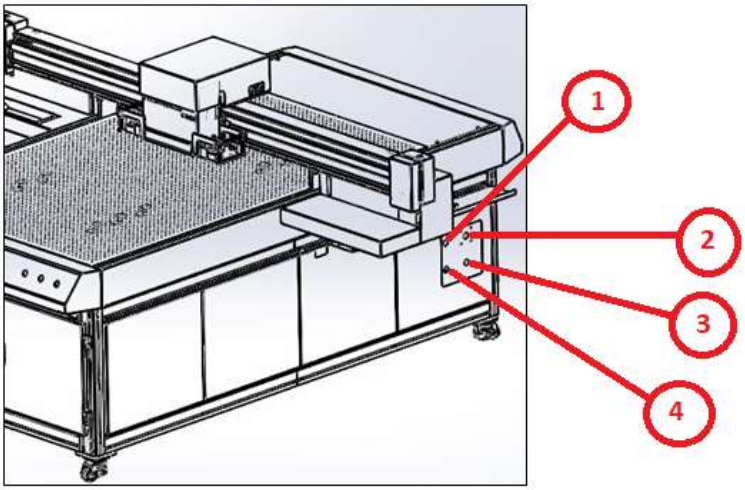


Fig 2: Displaying the Machine View (Right Side)

Table 2: Different Parts of Machine View

1. Low Ink Indicator	2. Machine Power Switch
3. Machine Power	4. Vacuum Pump Power

3. Getting Familiar with Print Control Center Interface

The **Print Control Center** interface is shown in the image below:

Fig 3: Displaying the ColorJet UV Print Control Center

The description of the **Print Control Center** is given as below:

- **Window Controls:** Use to minimize, resize or close the Print Control Center window.
- **Control Menu:** Consist of several menu or sub menu options viz. Print Option, Task Select, Operation, Maintenance, Help and also provide variety of functions in well organize manner.
- **Quick Access Buttons:** Display frequently performed actions like Print, Stop, Flash, Home, User Password, Lift Control and more.
- **Error Messages:** Displays the system generated error messages.

Setting Carriage and Gantry Position

Carriage and Gantry can be moved using Left, Right, FWD and REV arrow keys. The Left and Right arrow keys enable to set the carriage position. On the other hand, the FWD and REV arrow keys enable to move gantry in the forward and reverse directions. The control arrow keys are shown in the image below:

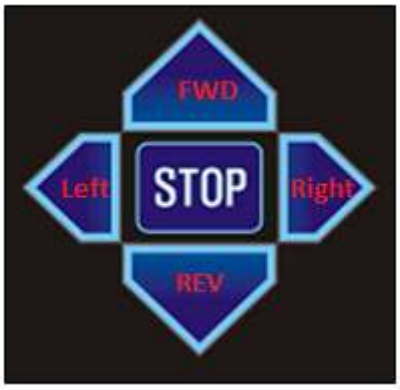


Fig 4: Displaying the Control Arrow Keys

Note: Carriage position can also be set by pressing the **CTRL + Arrow** keys available on the keyboard.

Lifting Carriage

To lift the carriage in Up and Down, click on the **Lift Control** button, as shown below:

Fig 5: Clicking the Lift Control Button

The **Lift Control** dialog box is shown as below:

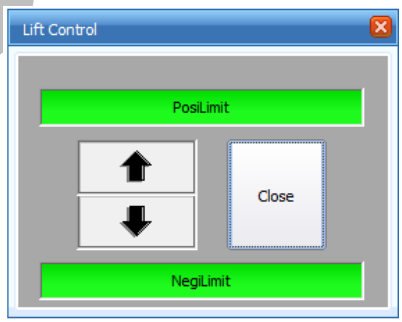


Fig 6: Lifting Carriage Up and Down

4. Getting Ready for Printing

Switch ON Procedure

Follow these steps to switch ON the printer:

Step 1: Check and maintain the room temperature for smooth printing operations.

Step 2: Check Ink Level.

Step 3: Check Waste Ink Bottle.

Step 4: Release the **Emergency** button, if pressed.

Step 5: Turn **ON** the Main Power switch located on the right side of the machine, as shown below:

Fig 7: Turning ON the Main Power Switch

Step 6: Check water level in the Chiller Unit and fill it, if required:

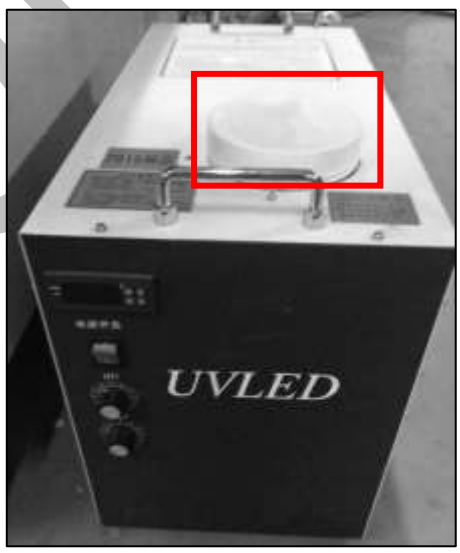


Fig 8: Filling RO Water

Step 7: Switch ON the Chiller unit, as shown below:

Fig 9: Switch ON UV Lamps

Step 8: Place the media on the Print Bed.

Step 9: Switch ON the Print Bed vacuum by pressing the **Bed Vacuum** button available on the front side of the machine, as shown below:

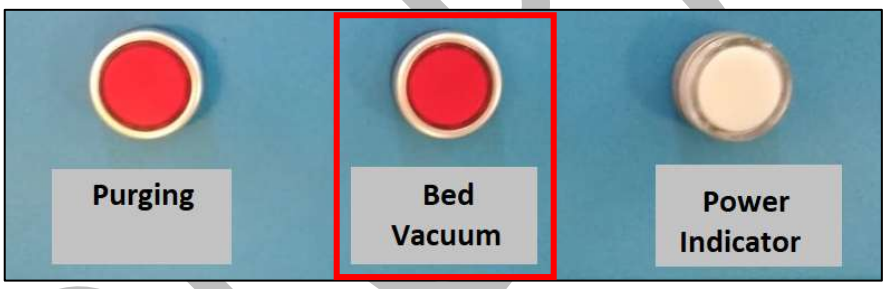


Fig 10: Turning On the Bed Vacuum Button

Note:

a. Carriage path must be obstacles free.
b. Ensure that Z height must be enough to move smoothly over the print bed.

Step 10: To initialize the machine, first open the Print Control Center and get it ready for use. Now, the machine starts initializing automatically.

Step 11: Rotate ink valve of each color in anti-clock direction using the key to open it, as shown below:

Fig 11: Displaying the Ink Valves

Switch ON Ink Valve by rotating the key, as shown in the image below:

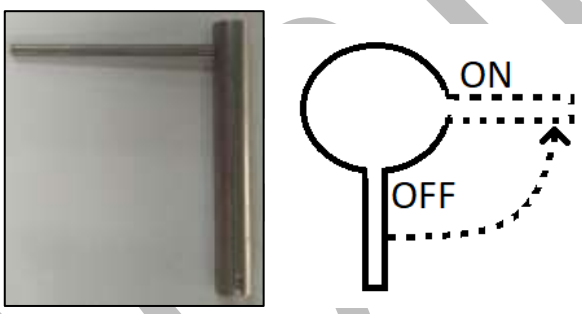


Fig 12: Opening Ink Valve Using the Key

Step 12: Lift the carriage up by pressing the **Lifter Back Zero b**utton on the **Carriage Lifter** tab under the **Maintenance** menu (Refer to Fig 14).

Step 13: Press the **Purging** button (Refer to Fig 10) and clean print heads using the tissue provided with the printer.

Step 14: Bring down the carriage by pressing the **Lifter Move to Print Height** button (Refer to Fig 14)

Step 15: Perform Nozzle test.

Now, printer is ready for printing.

Loading Media

Follow these steps to load media:

Step 1: Switch ON the Print Bed vacuum by pressing the **Bed Vacuum** button available on the front side of the machine, as shown below:

Fig 13: Turning ON the Bed Vacuum Button

Step 2: Set the head height using the **Carriage Lifter** tab, as shown below:

Fig 14: Detecting Head Height

To open the Carriage Lifter screen, click on the **Maintenance** menu and select the **Carriage Lifter** tab. After this, perform the following steps to adjust the head height:

a. Enter the X Offset value in the **Detector X-Offset to PrintPos** field.
b. Enter the Y Offset value in the **Detector Y-Offset to PrintPos** field.
c. After providing offset details, click on the **Apply** button (Refer to Fig 14).
d. Place the media on the print bed.
e. Click on the **Detect Media Height** button to detect head height.

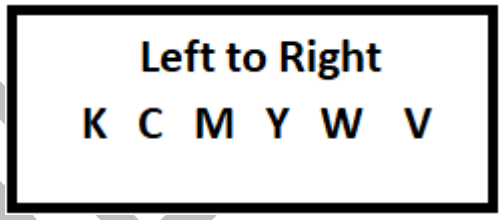
A detailed description of the head height adjustment is given in the **Head Height Adjustment** section.

Filling Ink

To refill ink, remove the Main Ink Tank cap and refill ink as per the color sticker, as shown below:

Fig 15: Displaying the Main Ink Tanks and Its Connectors

The sequence of Ink Main Tanks is shown below:



5. Chiller Operating Instructions

Note: Please read all the operating instructions carefully before using and following it.

Important Instructions

- Please confirm that the input voltage is AC 220V and make sure no coolant leakage from joints of water pipes before starting the equipment.
- Please confirm the cooling system is ON before turn on the UV LED lamp. Please shut down the main power from the electrical board and then shut the cooling equipment after 3 minutes.
- Please confirm that the ambient temperature of the equipment shall be maximum 35^0C.
- Please confirm that the dust proof net must be cleaned weekly.
- Please confirm that the distance between UV LED lamp and printer nozzle is suggested to be more than 5cm.
- Better to use antifreeze coolant.

Chiller Features

- Mercury free, safer, more environmentally friendly and energy efficient.
- Adopting more integrated COB package and available for customization.
- The UV LED lamp can instantly start up and work without preheating and standby mode.
- Unique design of small size and simple structure makes easier installation.
- Recycling coolant and rapid heat dissipating COB ensures longer lifespan of the UV LED lamp source.
- Higher luminous efficiency, less power consumption, long lifespan.
- The UV LED lamp is suitable for many curing base materials, like the soft, rigid, absorbent and non-absorbent materials. Don't need to deal with the heat radiation of thermosensitive base material.
- The UV LED light source is narrow band, which only give out useful light and no harmful UV light. As a cold light source, the components have very low thermal radiation which cut much heat during curing process.

Operation Rules

- Connect the AC 220V 50Hz power cable, signal control cable, UV LED lamp power cable and cooling circulation water pipes. If the cooling equipment and power board are separate please connect them with signal cable.
- Add coolant to the required level. Anti-freezing coolant must be used in freezing region.
- Switch on the power supply to confirm the operation of the water pump, the water pipes aren't bent and no coolant leakage. After 3-5 minutes operation, the air will be out from the pipes because the length and reservoir volume of the water tank is enough. If not, please add the coolant again.
- Connect the signal cable (make sure the input voltage is within 3-24V). When the signal pass, the UV LED lamp is ON and when the signal stop the UV LED lamp is OFF.
- Adjustment the potentiometer to control the power of the UV LED lamp.

Parameter Settings

Push the **Set** button for 5 seconds to read the parameter setting. Push the **+ -** button to adjust the data, then push the **Set** button to confirm the adjustment.

Code	Setting Contents	Default
HC	Work Mode	H
P7	Temperature Correction (^{0}C)	O
CA	Start-Up Delay (Seconds)	O
HS	Upper Limit of Temperature (^{0}C)	50
LS	Lower limit of Temperature (^{0}C)	5
D	Return Difference (minutes)	5

Push the **Set** button to set the default to be 50.

- **Winter Mode (Constant temperature mode, default is 26^{0}C):** The middle screen displays the current setting temperature that can be changed using the **+ -** button.
  Water temperature (D1) = setting temperature (D2) + D - values(C1)
  The setting range is 5-40^{0}C, the default is 30^{0}C. In addition, the setting temperature can't exceed the range of C4 – C5.
- **Summer Mode (Intelligent Mode, Default:** 1 ^{0}C): The middle screen displays the D-value of water temperature and indoor temperature, press the + - button can change it. The setting range is (-5~+5^{0}C).
  Water temperature (D1) = Indoor temperature(D2) ± D – values (C1)
  D1 will display upper limit (C5) and lower limit (C4) value if room temperature is too high or too low to beyond the upper or lower limit. For example: D2=1^{0}C, indoor temperature is 25 ^{0}C, so D1=26^{0}C+C1, as C1=1.5^{0}C in default. So, the water temperature D1 should control in 24.5 ~ 27.5^{0}C.

Other Instances

- Whether in winter mode or summer mode, the chiller will stop refrigeration when the water temperature lower than C4-0.5 ^{0}C and will return to normal control when the water temperature higher than C4 + 0.5 ^{0}C.
- The heating wire start to work when the water temperature lower than C6 – 0.5 ^{0}C and will stop work when the water temperature higher than C6 + 0.5 ^{0}C.
- Press the **Set** button to enter the setting mode, no operation for more than 10 seconds and press the **Set** button again to exit the setting state.
  - Press the **Set** button for 4s to restore the factory setting in the setting mode.
  - Press the switch to change the setting item, press the **+ -** button to modify the parameter value of the item.
  - D1 will show the item code, D2 show the parameter value and the D3 shows value remains same.

Chiller Code Instructions

Code	Content	Default	Instruction
C0	Alarm-d-value	15 ^{0}C	
C1	D-values	1.5 ^{0}C	The d-value between actual and target water temp
C2	Condenser Temp	60 ^{0}C	
C3	Water shortage alarm delay	1s	
C4	Low Water Temp Limit	20 ^{0}C	
C5	High Water Temp Limit	31 ^{0}C	
C6	Heating Wire Start Temp	2 ^{0}C	This value must be at least 2 ^{0}C lower than the C4
C7	High Indoor Temp Limit	48 ^{0}C	

6. Print Control Center Operations

Print Option Menu

On-clicking the Print Option button, the following image appears on the screen:

Fig 16: Displaying the Print Option Screen

The description of the Print Option screen is given as below:

- **UV Lamp Settings:** Allow to enable or disable UV lamps like Lamp1 Left Work, Lamp1 Right Work, and similarly for Lamp 2.
- **Colorbar Option:** Enable users to define the colorbar width, distance from image, distance between colors and colobar position.
- **White Color Settings:** Using the above screen, user can make white color settings like Full, RIP Color and more).
- **Varnish Color Settings:** Enable to define the volume of varnish color and its source (like Full, RIP Data and Valid Image)
- **Pass Feather Settings:** Set feather mode (Even, Shade, and User) and feather level (Small, Normal and Large).
- **Miscellaneous Functions:** User can also perform the following functions:
    - Media Advance speed
    - Skip White
    - Colorbar follow image

White and Varnish Settings

The **White Color** Settings are explained as below:

Fig 17: Displaying the White Color Settings

Description of different options for the **White Color** printing:

- **No Print:** No white color is printed.
- **Full:** White will be printed completely all over the image.
- **Valid Image:** White color is printed same as the percentage of CMYK color in the selected image.
- **Invalid Image:** White color is printed where CMYK color is not present in the selected image.
- **RIP Color:** White color is printed as per the RIP file.

After selecting the desired above-mentioned option for white color, select the printing direction from the **Material Dir** list box available on the **Properties** dialog box.

- **Forward:** Color over white.
- **Reverse:** White over color.

For example, Reverse case is used while printing on glass.

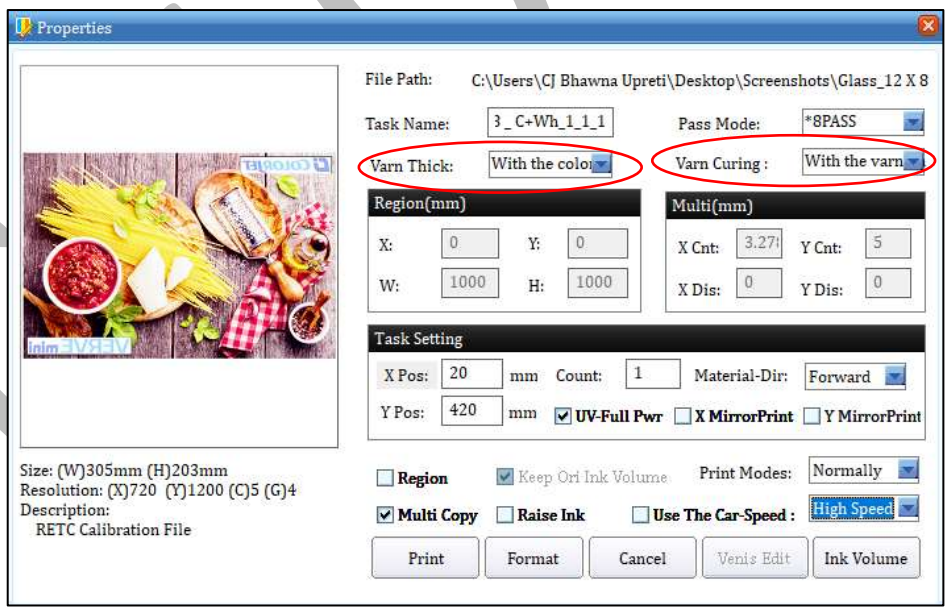
The **Varnish Color** settings are shown in the image below:

Fig 18: Displaying the Varnish Color Settings

Description of different options for the **Varnish Color** printing:

- **No Print:** No varnish color is printed.
- **Full:** Varnish will be printed completely all over the image.
- **Valid Image:** Varnish color is printed same as the percentage of CMYK color in the selected image.
- **RIP Data:** Varnish color is printed as per the RIP file.

After selecting the desired option for varnish color, select the varnish thickness and curing in the **Varn Thick** and **Varn Curing** list boxes available on the **Properties** dialog box, as shown below:



To enable varnish printing (over color) and curing, desired passes must be selected rather than **"with the color"** or **"with the varnish"**. This process is completed in three steps:

1. Color (With UV)
2. Varnish (Without UV)
3. Curing (Only UV No print)

Layer Mode

Layer mode defines the sequence and depth of printing with respect to color, white and varnish. To increase the depth of ink layer, select the desire option from the available list. For example, if the layer mode **C+W+V** is selected. This means, the first layer of Color (CMYK) is printed, then White and Varnish is printed in the last. The **Lay Mode** and its related options are shown in the image below:

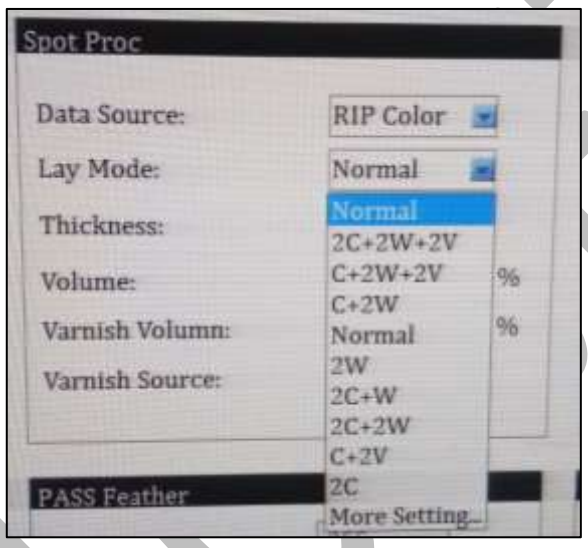


Fig 19: Layer Mode and Its Related Options

Printer Setting

Using this section, user can import and export existing printer settings and save the settings in the main board.

Importing File

This option enables to import an existing printer setting (in the .cbk file format) and apply these settings to the current printing jobs.

Follow these steps to import file:

Step 1: Click on the **Import** button to import a file (Refer to Fig 16). The **Open** dialog box appears on the screen, as shown below:

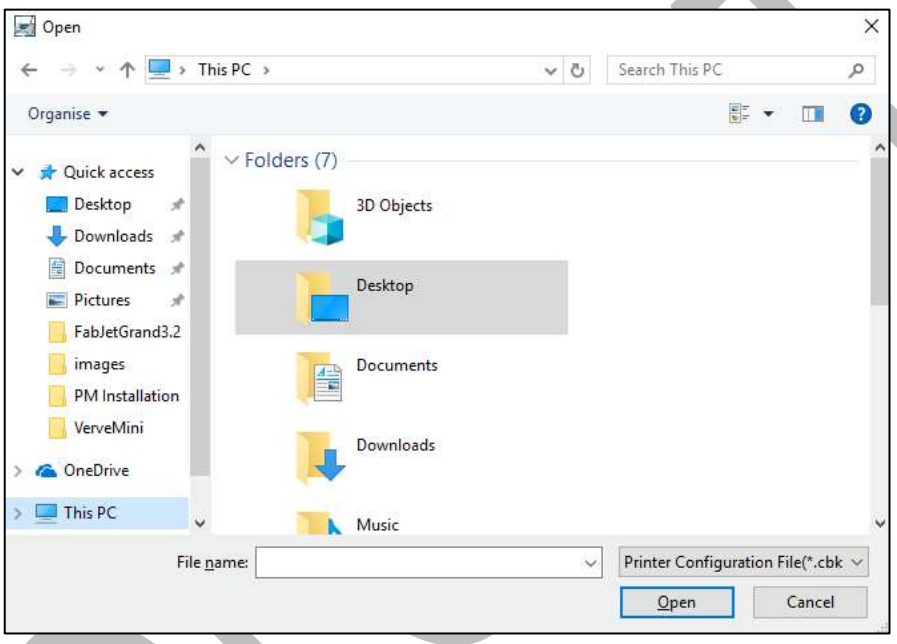


Fig 20: Displaying the Open Dialog Box

Step 2: Select the file path which user wants to import.

Step 3: After selecting the file path, click on the **Open** button to import the selected file.

The process of importing print settings gets started. After importing settings, click on the **Apply** button.

Exporting File

This option enables to save the current printer settings (in the .cbk file format) which can be used in future.

After clicking on the **Export** button, the following screen appears:

Fig 21: Exporting the Current Print Settings

After selecting the file path, click on the **Save** button to save the file.

Task Select Menu

The **Task Select** button is shown in the image below:

Fig 22: Displaying the Task Select Screen

Follow these steps to open and print a file:

Step 1: After opening the **Task Select** screen, navigate to the location where the printable file is stored (Refer to Fig. 22).

Step 2: Double-click on the image icon. The **Properties** dialog box appears, as shown below:

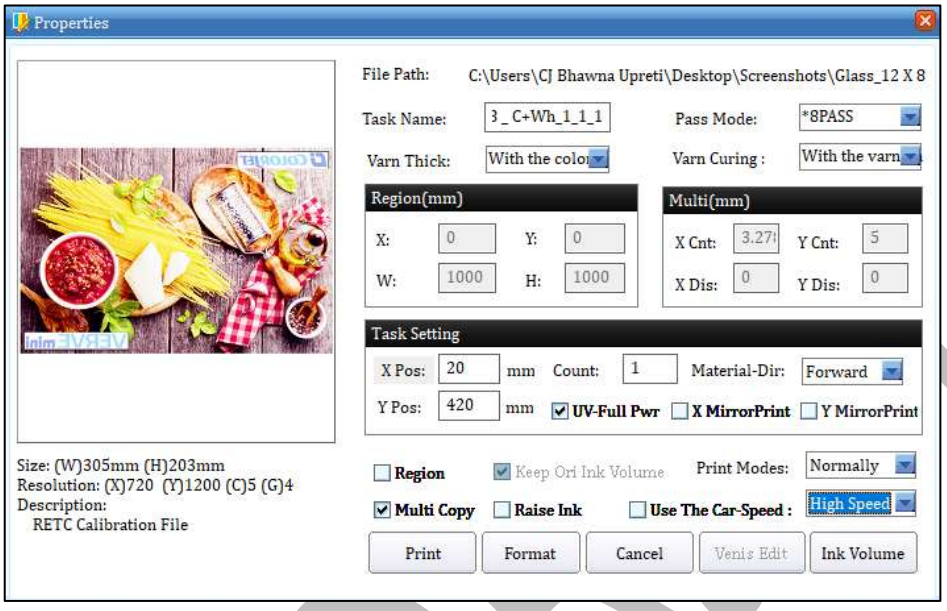


Fig 23: Displaying the Properties Dialog Box

Description of different options in the Properties dialog box:

- **Varn Thick**: Defines the thickness of varnish color with respect to number of Pass.
- **Varn Curing**: Set curing of varnish color with respect to number of Pass.
- **Region:** Enables to print the selected area of the image. When user select the Region check box, the Region(mm) section gets high-lighted where user needs to specify the X axis, Y axis, height, and Width of the area to print.
- **Multicopy**: Allows user to print multiple copies of the same image. When user select the Multi Copy check box, the Multi (mm) section gets activated where user has to specify total count of images in X axis and Y axis as well as horizontal and vertical distance between images.
- **Raise Ink:** Enables to raise the ink volume.
- **Material Direction:** Specify the printing direction like forward or reverse. By default, the carriage moves in the Forward direction but user can change it in the Reverse for some applications where print requires white over color.
- **UV Full Power:** Sets Full (High) power of the UV lamps.
- **X Mirror Print:** Enables or disables X mirror print.
- **Y Mirror Print:** Enables or disables Y mirror print.

Step 3: Click on the **Print** button to print the selected file. Additionally, user can also make change as per the requirements.

DPI and Passes

Verve Mini DPI and passes are given as below:

Passes	DPI
6 and 12	720X900
8, 12 and 16	720X1200

Checking the Image Ink Color Volume

Click on the **Ink Volume** button on the **Properties** dialog box (Refer to Fig 23) to check the requirement of each color ink to print the selected image. The **Image Color Ink Volume** screen appears as shown below:

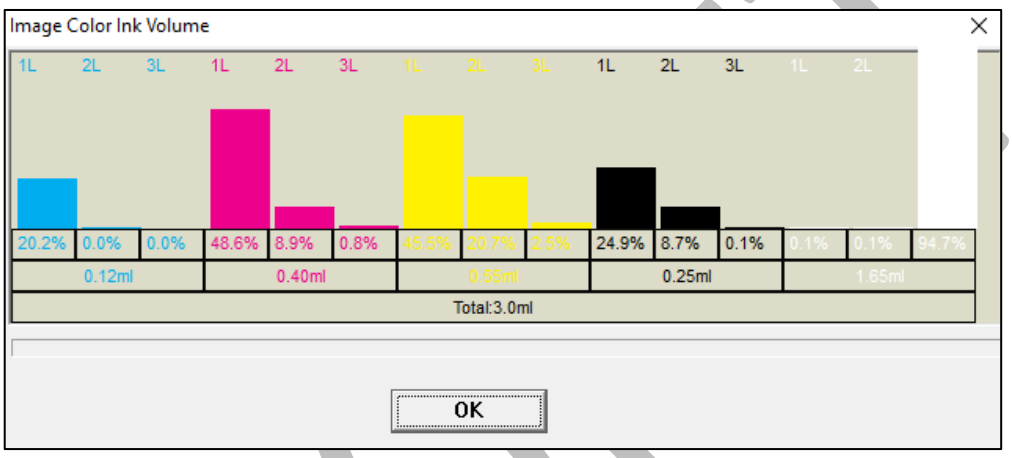


Fig 24: Displaying the Image Color Ink Volume Screen

In the above image, user can easily estimate the ink requirements for the selected image.

Changing Print Format

To change the print format like margin and image height/width, click on the **Format** button (Refer to Fig 23). The **Print Format** dialog box appears as shown below:

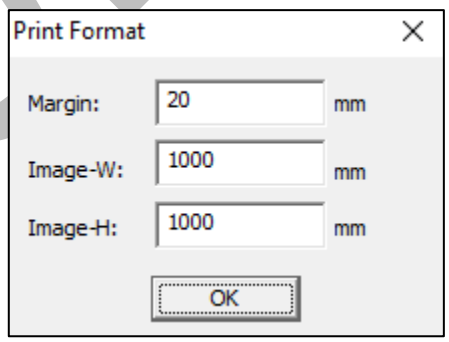


Fig 25: Displaying the Print Format Dialog Box

Using the **Print Format** dialog box, user can set margin, height and width of the selected image (Refer to Fig 25). After making the desire changes, click on the **OK** button to save the changes.

Operation Menu

The **Operation Menu** screen is shown in the image below:

Fig 26: Displaying the Operation Menu

List of options related to the **Operation** menu:

- **Open File:** Open image file for printing.
- **Print Position:** Set print settings like speed, print direction, X origin, and Y origin.
- **Status:** Issue test print command.

Let's discuss each option one by one in upcoming section.

Opening an Image File

Follow these steps to open an image file:

Step 1: Click on the **Open File** icon on the **Operation** screen (Refer to Fig 26). The **Open** dialog box appears on the screen, as shown below:

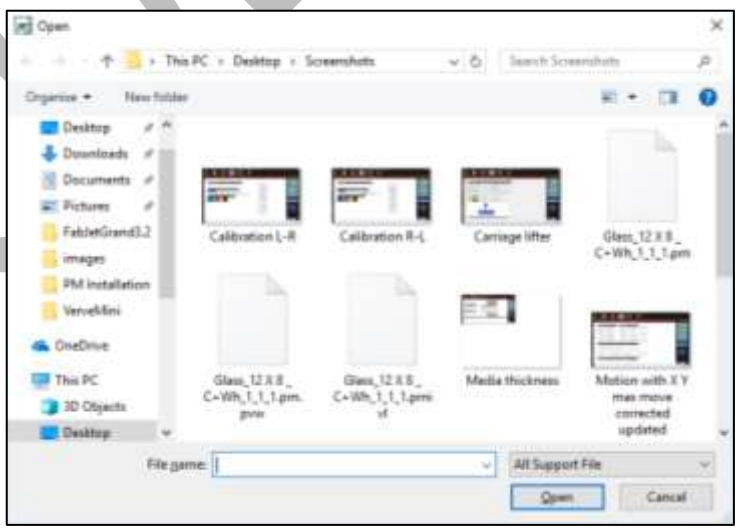


Fig 27: Displaying the Open Dialog Box

Step 2: Select the file by navigating the file location.

Step 3: After selecting the file, click on the **Open** button (Refer to Fig 27). The **Properties** dialog box appears with printing options of the selected image file.

If the image file is opened using the Operation menu, user gets the following benefits:

a) Create printing job queue
b) Prepare image file for ready to print.

Print Position

Print position option enables users to set the printing speed, print direction, X origin and Y origin, as shown below:

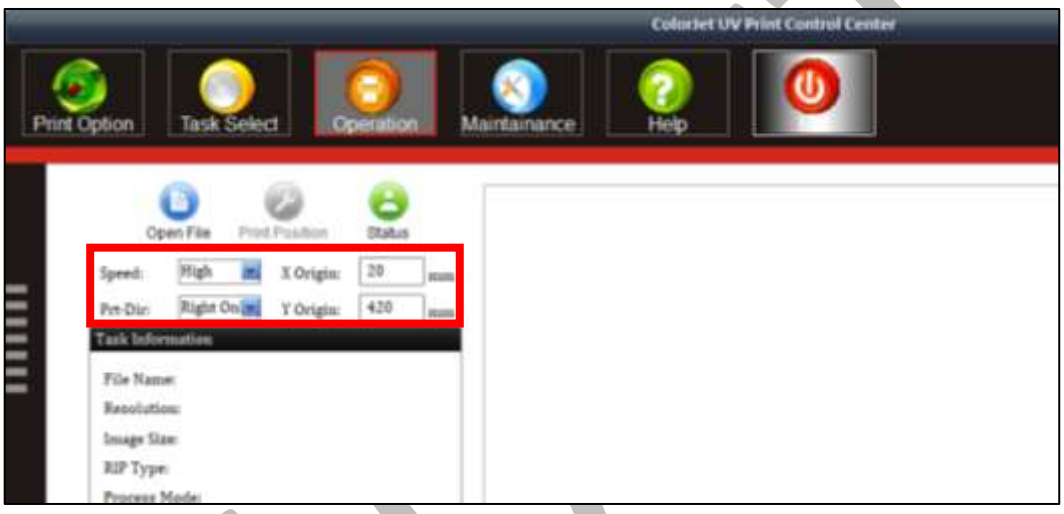


Fig 28: Setting the Print Position

Note: This option enables user to define printing direction like right only, left only, and bi-direction.

Checking Printing Status

Before giving the nozzle test, user needs to provide the printing parameters like print origin (X and Y), printing direction, and speed. To check the status of print head nozzles, click on the **Status** option under the **Operation** tab (Refer to Fig 28). The **Media Thickness** dialog box appears on the screen where user needs to set the media thickness, print head to media height, and lifter height. After making the desirable changes, click on the **Start Print** button to give the test print, as shown below:

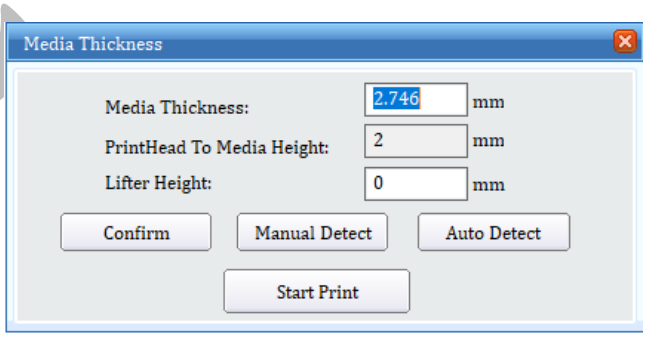


Fig 29: Displaying the Media Thickness Dialog Box

The **Test Result** is shown in the image below:

Fig 30: Displaying the Test Result

Note: In case of soft media, user needs to manually feed the value of media thickness, print head to media height, and lifter height by verifying it.

Maintenance Menu

The **Maintenance** menu is shown in the below:

Fig 31: Displaying the Maintenance Menu

The Maintenance menu consists several tabs viz. Calibration, Motion, Voltage, Carriage Lifter, and System Information. Let's see all these menus one by one in the upcoming section.

The **Motion** tab is shown as below:

Fig 32: Displaying the Motion Tab

In the above image, user has to provide the value of X and Y Move Length which defines the distance travelled while moving the carriage and gantry manually in a single click of an arrow key (Refer to the marked area).

The **Voltage** tab is shown as below:

Fig 33: Displaying the Voltage Tab

This section is only used by the service engineer.

The **Carriage Lifter** tab is shown as below:

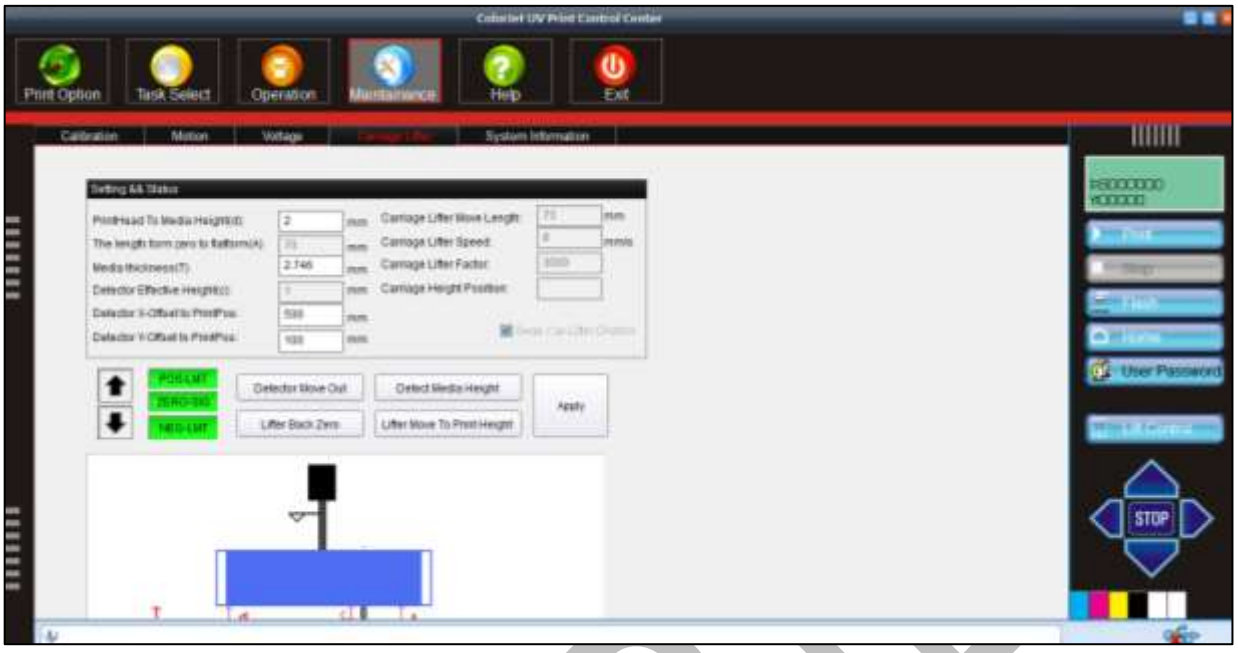


Fig 34: Displaying the Carriage Lifter

The Carriage Lifter tab is used for lifting the carriage in the Up or Down position. Additionally, this tab also helps in detecting the media height.

The **System Information** tab is used to provide a complete set of information about the Print Control Center system installed in user computer. Additionally, user can feed the password before expiry, as shown as below:

Fig 35: Displaying the System Information Tab

Feeding Password

In Verve Mini, there is a hardware key associated with the Main Board. This hardware key is required to run the printer and valid for certain time period. When the time period is completed, printer gets stopped and needs new password to start. For new password, user needs to approach service personnel and enter the password in the given field as shown below:

Fig 36: Enter System Password

7. Head Height Adjustment

Follow these steps to adjust the head height:

Step 1: Click on the **Maintenance** menu (Refer to Fig 37).

Step 2: Click on the **Carriage Lifter** tab of the **Maintenance** menu, as shown below:

Fig 37: Selecting the Carriage Lifter Tab

Step 3: Enter the X offset value in the **Detector X-Offset to PrintPos** field.

Step 4: Enter the Y offset value in the **Detector Y-Offset to PrintPos** field.

Step 5: After providing X and Y offset values, click on the **Detect Media Height** button to start the head height detection process, as shown below:

Fig 38: Detecting the Head Height

Step 6: After this, click on the **Apply** button to apply changes if any (refer to Fig 38).

Caution:

- This functionality may not detect soft material.
- Uneven surface may damage the print head.

8. Machine Calibration

Print Heads should be calibrated to ensure good printing quality. To perform calibration, *click* on the **Maintenance→Calibration** path and then, as shown below:

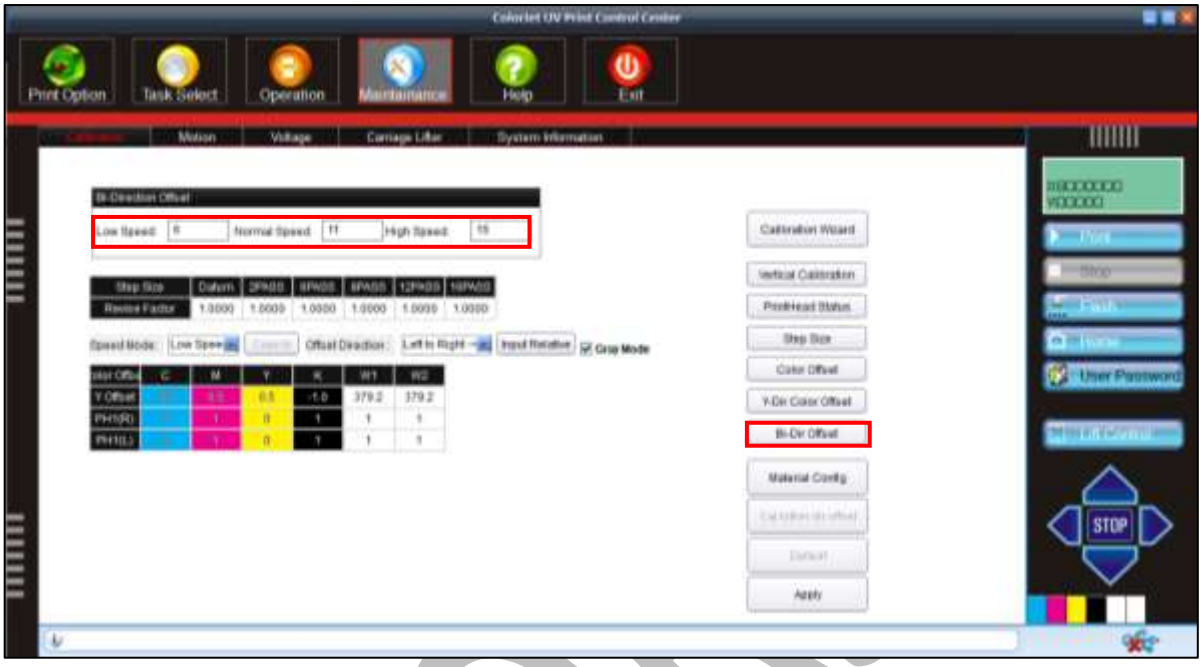
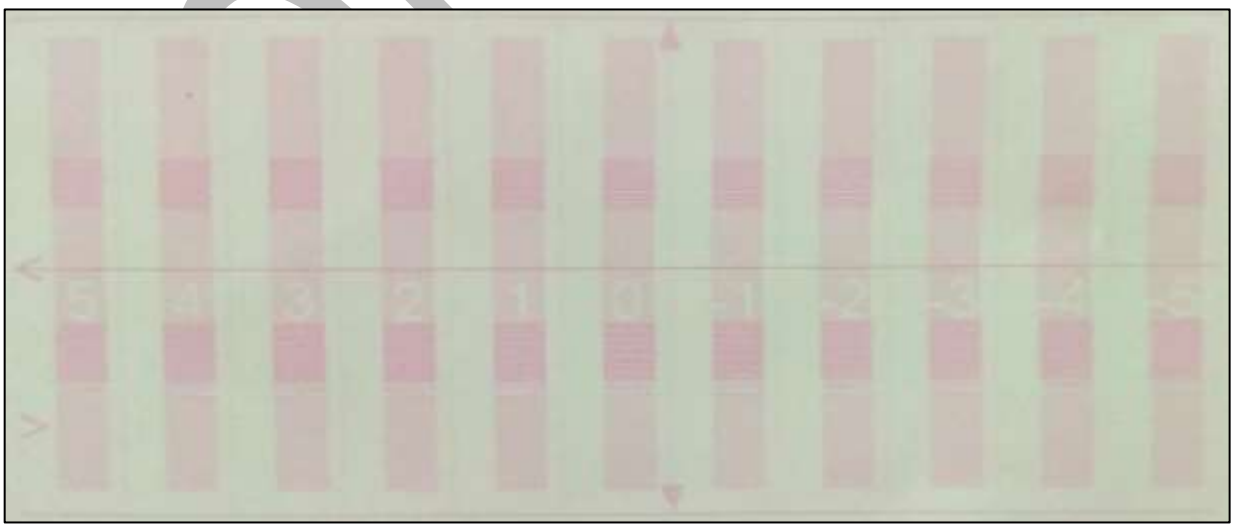


Fig 39: Opening the Calibration Wizard

In the above figure, step and bi-direction calibrations are performed simply by providing data in the given fields. If print head height is altered then user needs to perform bi-direction calibration. For bi-direction, click on the **Bi-Dir Offset** (Refer to Fig 39) and select the speed for which you want to perform the calibration. The **Bi-direction Calibration** result is shown in the image below:



From the above image, user needs to select the value of best aligned pattern and feed (by adding or subtracting in the current value) in the mark field (Refer to Fig 39).

9. Head Cleaning

Print Head is a delicate part which needs to be cleaned as per the recommended methods to have long life and to ensure consistent print quality. Below sections give recommended steps to clean the Print Heads.

Head Blotting and Purging

Head blotting refers to the process in which the head surface area is cleaned with the help of cloth. Blotting removes ink drops adhering to the Print Head nozzle surface. Gently touch the surface of print head's nozzle plate with recommended piece of cloth. One should make sure that the cloth is clean and soft.

The Head Blotting process is shown in the image below:

Fig 40: Cleaning the Print Head with a Piece of Cloth

Perform these steps to clean the Print Head:

Step 1: Open the Print Control Center.

Step 2: Select the **Maintenance** menu.

Step 3: Select the **Carriage Lifter** tab.

Step 4: Click on the **Lifter Back Zero/Up Arrow icon** button to lift up the carriage for blotting, as shown below:

Fig 41: Lifting Up the Carriage

Step 5: Open Ink Valve using the key provided with the printer.

Step 6: Press the **Purging** button to purge ink, as shown below:

Fig 42: Purging Print Head

Step 7: Multi fold the cloth 3-4 times provided with the machine.

Step 8: Hold it from one end such that other end remains flexible and extra pressure is not getting applied on the heads.

Step 9: Locate the head nozzles and gently touch the nozzle plate with the tissue to soak all residue inks on the nozzle plate. Care about changing cloth position so that colors don't get mix.

Step 10: After blotting inks from heads, click on the **Lifter Move To Print Height** button to reset the height of carriage to printing position (Refer to Fig. 41).

Note: Please strictly follow the below mentioned instructions:

- Avoid using the same cloth to clean the Print Head.
- Cleaning with dry and inferior quality tissue paper will damage the nozzle film by making scars.
- Strictly use recommended cloth (Contact your dealer for cloth).
- Don't clean hard, just absorb the residue inks on nozzle plate.
- Softly touch with a lint free bloating cloth (duly wet by cleaning solvent) by changing the cloth position with respect to nozzle plate.
- Don't apply force while absorbing residue inks with cloth after purging.
- Leaving head plate uncapped for longer duration (3-4 days), while printer off, will block nozzles permanently due to ink solidification.
- Color bar should always be enabled while printing and idle spray should always be enabled for long life of the Print Head.

Head Spraying

Head spraying should be performed to avoid mixing of colors and also may open few blocked nozzles. To perform head spraying, *click* on the **Flash** button available on the **Right Panel**, as shown below:

Fig 43: Clicking on the Flash Button

10. Shutdown Procedure

Follow these steps to shut down the machine:

Step 1: Switch OFF the bed vacuum by clicking on the **Bed Vacuum** button, as shown below:

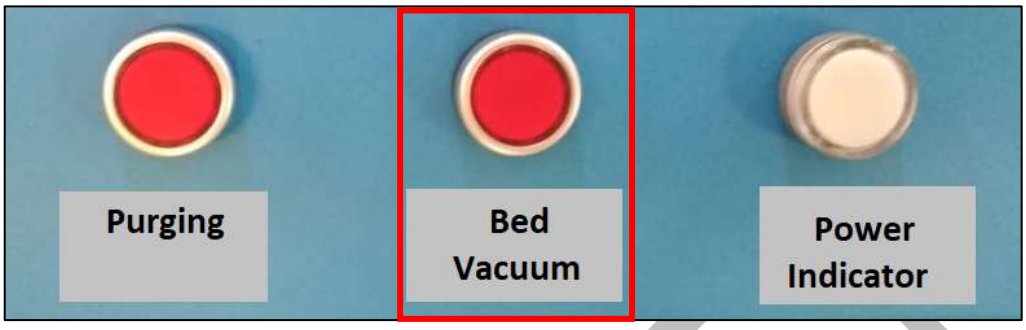


Fig 44: Switch OFF the Bed Vacuum

Step 2: Move the carriage over the print bed and bring down the carriage to the minimum position using the down arrow as shown below:

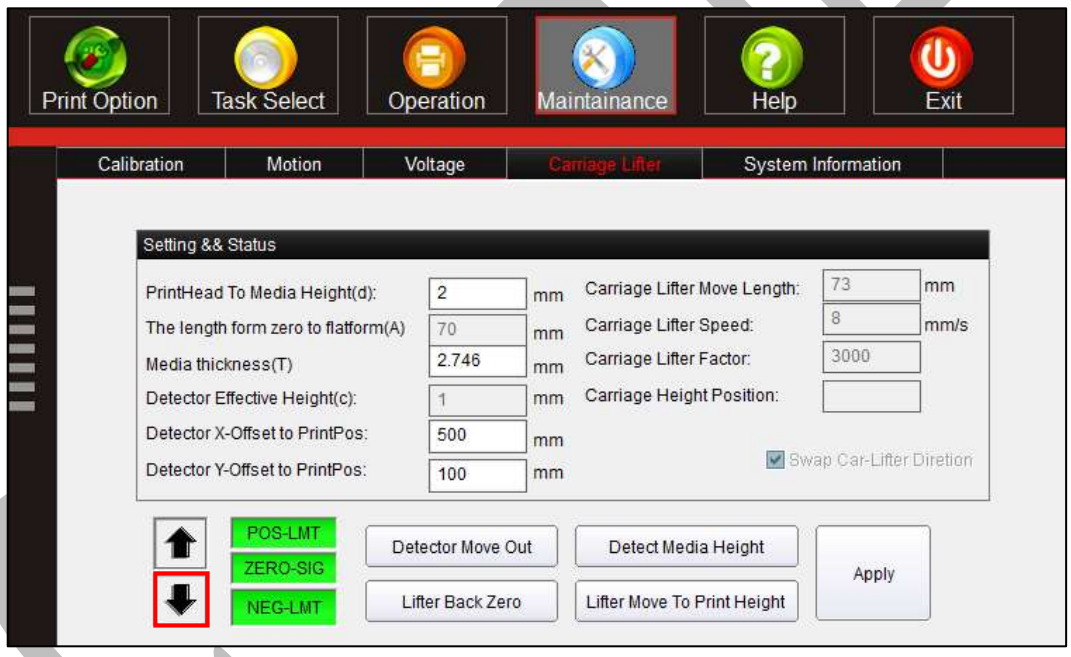


Fig 45: Set the Carriage Position at Minimum Down

Step 3: Switch off the **Chiller Unit** by pressing the OFF button as shown in the below image:

Fig 46: Switch OFF the Chiller Unit

Step 4: Turn off the ink valves

Step 5: Move the Main Power switch in anti-clock direction to switch off the printer, as shown below:

Fig 47: Turn OFF the Main Power Button

Step 6: Turn Off the main switch.

After switch OFF, properly cover the printer to protect from the dust.

11. Do's and Don't

Do's

- Always care about unevenness of media as it may damage the Print Heads, if not properly placed
- Keep the room dust free and maintain the temperature
- Perform Nozzle test daily before using the machine
- Use only recommended ink in the machine
- Check and refill ink main tank regularly to avoid air lock
- To avoid air in head pipes, always maintain the ink level more than 1 Litre in the main tank and wipe Print Heads immediately after purging
- Chiller tank should be filled with coolant liquid
- Keep the Gantry path free from any obstacle

Don'ts

- Don't forget to detect media height before printing
- Avoid ink spilling on the Print Head and head cables
- Don't use expiry ink and store ink at favorable environment
- Avoid printing without Colorbar
- Avoid head damage due to media and Print Head confliction

12. Maintenance

Print Head Maintenance

Print Head is an important and delicate part of the printer. Thus, it must be handled with care to ensure the long life of the machine. Pay attention to potential problems caused by environment, heat and moisture, collision, cleaning etc. For print head maintenance, the following instructions should be taken care:

- Perform the nozzle test daily 2-3 times before printing to monitor the blockage in the head nozzles.
- Use the print head in specified environmental conditions viz. Temperature 20-25 degree Celsius with humidity 55%, dust-free and exhaust condition.
- Avoid ink spilling on the print head and head cables and if there is ink in the print head, it must be wiped dry with clean cloth, and inform engineer
- Avoid head damage due to media and Print Head confliction.
- Color bar should be ON.
- Don't use expiry ink and store the ink at favorable environment.
- Prevent the object or human body with static contact to the print head.
- Print head nozzles should be kept clean, dust free, and also prevent from oxidation.

Maintenance of Machine Motion Parts

- Clean and lubricate guide rail at least once a month and lubricate if required.

Equipment Cleaning

- Turn OFF all power switches to machine while cleaning the machine equipment.
- Avoid splashing liquid and dropping on/in the circuit board or the power line.
- Careful while cleaning the sensitive devices, like sensors and raster.
- Use clean cloth to clean up the dust and residual oil on the tracks.
- Should keep water, ink, oil away from the Encoder scale.

Power System Maintenance

- Ground wire should always be checked whether loose or disconnection.

Control System Maintenance

Static discharge

- The operator must discharge his own electrostatic charge before touching the electronic components and parts.
- Don't touch the pin connectors and welded joints on circuit boards, integrated circuit boards.

Ink Supply System Maintenance

- Check for leakage between joint & ink tank and joint & valve settings.
- Check for damages on ink tubes.
- Check Ink impurities in the ink tanks as this will affect the ink supplying.

Water Chiller Operating Instructions

- It is forbidden to put the water chiller under the temperature environment 0°C, otherwise the circulating water would ice, which generates frost damage to the equipment! (If the water chiller must be preserved in below 0°C environment, please take the following measures:
    - Please be sure to drain the water 0ff in the water chiller immediately after it is switched off and then fill it full with water before next operation;
    - Please add antifreeze appropriately in the circulating water in order to reduce the freezing point.

      Note: Add antifreeze according to the requirements of the cooling equipment.)
- It is forbidden to tilt the water chiller or to carry or place it inverted. It must not be switched on again after normal handling until the machine has been standing still for 2 hours!
- Make sure that the air is removed from the water pump before the water chiller is switched on. Strictly prohibit empty running the water chiller!
- Don't plug or unplug the joints when the water chiller is running.
- The water chiller's normal operating temperature range is 10°C to 35°C. If the temperature is beyond the range, please contact the manufacturer.
- Make sure that the water chiller is operated in a smoothly ventilated environment and it is barrier free in 0.5 meter on both sides of the air inlet and air outlet.
- Make sure that the water tank is filled with water before the machine is switched on, then fill the tank again after one minute's running to avoid the low water level alarm leads to abnormal operation of the water chiller.
- Distilled water is the best to be used as circulating water, then is high quality pure water. Don't use tap water or other water which contains acid, alkali, corrosive or mineral substance.
- Circulating water temperature is set according to the standard that no dew appears on the surface of the cooled parts. It is easy to damage the equipment damage if there's dew on the surface of the parts. Please set the temperature value according to the environmental temperature and relative humidity.
- The water chiller must be placed in a horizontal plane and fixed before it works.
- The length of the pipe to connect the water chiller and cooled equipment should not be longer than 8m (4m one path). If not, the pipe resistance would increase and the flow rate would decrease that will result in abnormal operation or damage of the water chiller and cooled equipment.
- Check whether the water level is normal, the pipe is blocked and pipeline valve is normally opened before the machine is switched on.
- Clean the condenser fins and fan blades every 7 days (cleaning method: open the air inlet and then blowout the dust of condenser with air pressure gun).
- Replace the circulating water every 1 to 2 months and clean the water tank, water pipe and joints.
- Fasten the electrical wiring inside the electrical control cabinet with a fixed screw every six months to prevent the screw loosening, which results in poor contact.

13. Troubleshooting

Printer Not Initializing

- Emergency button is pressed
- Head Power is not ON
- Servo driver is not powered ON/faulty
- Main Board is faulty
- Encoder sensor is not connected to HB
- Jumper is removed from MB
- Limit switch is disconnected

Print Control Center Not Showing "Ready"

- USB is disconnected from computer or loosely connected
- Print engine is OFF
- Main board is faulty
- USB cable is faulty

Print Not Drying/Ink Marks on Back of the Fabric

- UV Lamps are not ON or working

Ink Not Filling

- Main tank is empty
- Air reservoir float connector is disconnected
- Ink overflowed in air reservoir.
- Ink pipe is having cut/bend
- Ink pump is not working/connector loose/open
- Sub tank float connector is loosely connected to the headboard
- Sub tank float is not working

Print Stops in Between Printing

- USB cable is loose / faulty
- Image files are heavy in size
- Ground wire is disconnected
- Encoder scale is having ink stains/scratches
- Pulley or belt is slipping
- Ripped file is having error

Print is Shifting wrt Fabric/ Junk Printing

- Encoder scale is having ink stains (print shows vertical color bands)
- Encoder sensor is not clean
- Pulley or belt is loose or teeth wear out and slipping
- Fibre optic data cable is faulty

Print is Blur

- No proper calibration viz. bi-direction and step
- Head height is disturbed and not calibrated for above
- Incorrect resolution is selected
- Media surface is uneven

Lines in Prints

- Nozzle blocked in heads (check nozzle test)
- Incorrect feed step (calibration required)

14. Error Code Specifications

Machine Errors

Error Code	Error Description	Remedial Action
111	Control device can't be driven	• Reconnect USB control card • USB card is damaged
118	Fail to create fiber communication	Check if fiber optic cable cut/disconnected
122	System can't detect the signal of X position encoder in reset action and fail to reset action	• Check emergency switch if pressed • Verify motion work is normal
125	Detected emergency signal	Close emergency switch, then restart software
127	Y position encoder no signal	• Check emergency switch if pressed • Verify gantry motion work is normal
138	X Axis reset fault	Check emergency switch if pressed
151	No found security do	Check whether security dog is inserted in the system
152	This security dog is invalid	The security dog doesn't match control hardware
154	The security dog time is wrong!	Contact your equipment provider
155	The Security dog has expired.	Contact your equipment provider
156	The Security dog has expired	Contact your equipment provider
157	The Stage is expired	Contact your equipment provider to get new stage password
159	The security dog time is wrong!	Contact your equipment provider
161	The authorization is inactive. must input activated password and restart software!	Contact your service provider to get activated password
168	The stage password is wrong!	Contact your equipment provider to get password!
169	The new stage is expired, continue to input valid password. Please	Contact your equipment provider to get password!
139	Y Axis Reset Fault	Verify encoder signal A and B
309	USB disconnect	Connect USB
319	Y margin is incorrect	Need to give some values instead of 0
1190	Failed to load waveform file." "confirm Ricoh printhead waveform file exist?	This can happen when new software installed. copy wf in that folder and when error comes during initialize, go to voltage setting and enable user pwd and select wf, load cong and apply

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